



Department of Energy

Carlsbad Field Office
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July 23, 2004



Mr. Steve Zappe, Project Leader
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6303

Subject: Transmittal of a Revised Certification Audit Report (B6 Checklist), for the Argonne National Laboratory-East/Central Characterization Project (CCP), Audit (A-04-03), and Nevada Test Site/CCP, Audit (A-04-04)

Dear Mr. Zappe:

This letter transmits the revised final audit reports and the B6 checklists for the Argonne National Laboratory-East and Nevada Test Site. The revised B6 checklists address the comments identified in letters from the New Mexico Environment Department (NMED) dated July 8, 2004. Also enclosed with this letter are the responses to the comments contained in the enclosure to those letters.

In the letters transmitting the comments, NMED expressed a concern regarding recertification audits of Central Characterization Project (CCP) activities. Specifically, NMED was concerned about recertification audits being performed in Carlsbad instead of at the generator/storage site. Recertification audits are performed in Carlsbad only when CCP has demobilized equipment from the generator/storage site before the recertification audit date. Since CCP maintains waste characterization and certification records in Carlsbad, and if there are no operations and equipment to observe at the generator/storage site, it would be of no benefit to transport the records, CCP personnel, and Carlsbad Field Office (CBFO) auditors to the physical location of the generator storage site under these circumstances. Due to the nature of mobile characterization activities this type of situation is found to occur from time to time. The DOE believes this approach satisfies the requirement of Section B6-3 Permit, which states, *"Audits will be conducted at least annually for each site involved in the waste characterization program."*

A concern was also identified regarding the surveillance CBFO would perform if CCP operations were to restart at the generator/storage site after the recertification audit. As stated in the final audit report, the purpose of this surveillance would be to, *"...verify that the equipment, processes and procedures remain as currently certified and approved..."* The NMED would be invited to observe any such surveillance but it would not be subject to NMED review and approval because it is not a surveillance required by the Permit.



Mr. Steve Zappe

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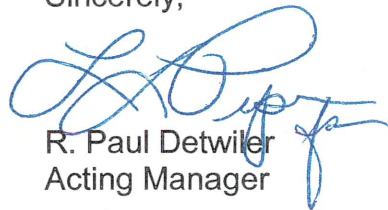
July 23, 2004

With regard to ANL-E specifically, characterization operations at the site ceased on August 19, 2003, 48 days before audit A-04-03 began. Because CCP was still processing documents for ANL-E (e.g., performing project level review of batch data reports) at the time of the recertification audit, the DOE believed that an annual audit had to be performed pursuant to the terms of the Permit. A closeout audit for ANL-E/CCP is currently scheduled for December 2004.

With regard to NTS specifically, characterization operations at the site ceased on December 5, 2002, 275 days before audit A-04-04 began. Because CCP was still processing documents for NTS (e.g., performing project level data reconciliation) at the time of the recertification audit, the DOE believed that an annual audit had to be performed pursuant to the terms of the Permit. The CCP has redeployed to the NTS and a surveillance to verify that the equipment, processes and procedures remain as currently certified and approved is scheduled for August 3 – 4, 2004.

Please contact the CBFO Quality Assurance Manager, Ava L. Holland, at (505) 234-7423 should you have any questions concerning this letter or the revised final audit report.

Sincerely,



R. Paul Detwiler
Acting Manager

Enclosure

cc: w/o enclosure

A. Holland, CBFO *ED

D. Miehl, CBFO *ED

K. Watson, CBFO *ED

R. Knerr, CBFO *ED

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P. Rodriguez, CTAC *ED

cc: w/enclosure

C. Walker, Techlaw

WTS Operating Record

CBFO M&RC

CBFO QA File

RESPONSE TO
NMED COMMENTS ON THE
NEVADA TEST SITE/CENTRAL
CHARACTERIZATION PROJECT (NTS/CCP)
FINAL AUDIT REPORT A-04-04

1. Questions 8, 11, 12, ... and 311 cite procedure CCP-PO-001. Procedure CCP-PO-001 was not included with the audit report.

CCP-PO-001, Revision 6, CCP Transuranic Waste Characterization Quality Assurance Project Plan, is provided as Attachment 1.

2. Questions 12, 13, 26, ...and 313 cite procedure CCP-TP-062. Procedure CCP-TP-062 was not included with the audit report.

OP-2151.402 / CCP-TP-062(SBI), Revision 10, TRU Waste Visual Examination, Segregation, and Repackaging, is provided as Attachment 2.

3. Questions 32, 33, 34, 35, 36, 37, 38, and 39 cite procedure CCP-PO-011. Procedure CCP-PO-011 was not included with the audit report.

This was a typographical error. Procedure CCP-PO-011 was intended to read: CCP-PO-001, which has been included in this package as Attachment 1.

4. Question 53 cites procedure CCP-TP-002, Section 4.4. The cited section does not fully answer the question.

The checklist was revised to cite Sections 4.3, 4.4, and 4.5, of CCP-TP-002, in their entirety.

5. Question 148 cites procedure CCP-TP-002, Section 4.2.1. The cited section does not answer the question.

This was a typographical error. The checklist was revised to reference CCP-QP-002, Section 4.2.1.

6. Question 168 cites CCP-TP-005 Sections 4 and 4.6. Citation is OK, but another reference would further clarify the answer.

Additional references, CCP-TP-005, Sections 3.1.1 and 4.4.2, have been added to the checklist.

7. Question 188 cites procedure CCP-TP-009, Section 44.1.1. This section does not exist.

This was a typographical error. Section 44.1.1 was intended to read: Section 4.1.1 of CCP-TP-009. The checklist has been revised accordingly.

8. Question 196 cites procedure CCP-TP-007, Section 4.5.1. The question is not fully addressed.

The following additional references were added: Section 4.5.1 [E] ensures a seal by requiring the covering of existing filter vents, and Section 4.5.1 [F] requires the covering of vent clips to ensure a seal. These citations appear to answer the question, and meet the requirements of the Permit.

In addition, Sections 1.3.5, 1.3.7, 1.3.8, and 1.3.11 provide further process illustration, and have been cited in the revised checklist.

9. Question 204 cites procedure CCP-TP-007 Attachment 5. Attachment 5 does not exist.

Attachment 5 was cited in error. Procedure CCP-TP-007, Section 4.2.4, and CCP-PO-001, Section B3-2, satisfactorily respond to Question 204. Comment added: OVAs are not used. The checklist has been revised accordingly.

10. Questions 222a and 222b cite CCP-TP-007 Section 4.10.1. The given section does not exist.

The procedure noted above was cited in error. The correct citation is CCP-TP-032, Attachment 1, TICs Section, for both 222a and 222b. No compositing is performed. The checklist has been revised accordingly.

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

REVISED FINAL AUDIT REPORT
OF THE
NEVADA TEST SITE
UTILIZING THE
CENTRAL CHARACTERIZATION PROJECT

AUDIT NUMBER A-04-04

October 6 – 9, 2003

FINAL AUDIT REPORT OF WASTE CHARACTERIZATION IN
ACCORDANCE WITH THE HAZARDOUS WASTE FACILITY PERMIT



Prepared by: *A. Axinn*
Annabelle Axinn, CTAC
Audit Team Leader

Date: *7/21/04*

Approved by: *Ava L. Holland*
Ava L. Holland, CBFO
Quality Assurance Manager

Date: *7/21/04*

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-04-04 was conducted to re-evaluate the adequacy, implementation, and effectiveness of the Nevada Test Site/Central Characterization Program (NTS/CCP). This re-certification audit was conducted on October 6 – 9, 2003, in Carlsbad, New Mexico, and re-evaluated the CCP transuranic (TRU) waste characterization and certification activities related to Summary Category S5000 contact-handled debris waste streams. The audit team assessed the adequacy, implementation, and effectiveness of both technical and quality assurance (QA) activities.

In the absence of physical characterization equipment, the audit scope and methodology consisted of an extensive review of the batch data reports (BDRs) and other documentation associated with each of the characterization techniques. Evaluation of completed BDRs and associated documentation provided objective evidence of proper implementation of the various characterization processes. This assessment confirmed the CCP programmatic interfaces established with Bechtel Nevada (BN), the CCP administrative controls needed to manage characterization activities, and the characterization processes and activities previously conducted at the NTS. The activities evaluated included characterization with a mobile real-time radiography (RTR) system, NTS visual examination (VE) segregation, repackaging operations conducted in the NTS Waste Examination Facility (WEF), and mobile single-sample manifold headspace gas (HSG) sampling and analysis equipment. In addition, the process for developing the acceptable knowledge (AK) documentation was evaluated.

The audit team concluded that the CCP technical and QA procedures were adequate relative to the flow-down of requirements from the CBFO Quality Assurance Program Document (QAPD), and the Waste Analysis Plan (WAP) of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP). The audit team also concluded that the assessed activities were being satisfactorily implemented in accordance with the CCP Quality Assurance Project Plan (QAPjP) and the implementing procedures. The established technical processes and the QA program and procedures were also determined to be satisfactorily implemented and effective.

The audit team identified one condition adverse to quality (CAQ) resulting in the issuance of one CBFO corrective action report (CAR). The CAR identified adverse conditions concerning the use of an on-line control sample (OCS) gas cylinder beyond its expiration date. This CAR was deemed to be non-significant because waste has not been shipped, and the technical quality of the data was not impacted.

Four isolated deficiencies requiring only remedial corrective actions were corrected during the audit (CDA). No Observations resulted from the audit, and one Recommendation is being offered for management consideration. The CAR, CDAs and Recommendation are described in Sections 6 and 7.

It should be noted that prior to any future and acceptable characterization by the NTS/CCP, a CBFO surveillance would be scheduled and performed to verify that the equipment, processes, and procedures remain as currently certified and approved for S5000 debris waste.

2.0 SCOPE AND PURPOSE

2.1 Scope

CBFO Audit A-04-04 was conducted to re-evaluate the adequacy, implementation, and effectiveness of the CCP QA Program and technical processes used to perform TRU waste characterization activities for retrievably stored, contact-handled debris waste in accordance with the requirements contained in the WIPP HWFP. Compliance was demonstrated and documented by completing the attached B6 checklist for the applicable NTS/CCP activities.

The following elements were evaluated in accordance with the CBFO QAPD:

- Organization/QA Program Implementation
- Personnel Qualification and Training
- Grading Program
- Documents and Records
- Procurement
- Control of Measuring and Test Equipment
- Nonconformance/Corrective Action
- Audits and Assessments
- Sample Control
- Software Quality Assurance

The following CBFO technical characterization elements were evaluated in accordance with the WAP:

- Data Verification and Validation (V&V)
- AK
- Nondestructive Examination (NDE) (RTR)
- HSG Sampling and Analysis
- Sampling Design
- Performance Demonstration Program (PDP)
- Waste Stream Profile Forms
- WIPP Waste Information System (WWIS) Data Entry

The evaluation of the NTS/CCP Transuranic (TRU) Waste Characterization Program was based on current revisions of the following documents:

- *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
- *Quality Assurance Program Document (QAPD), DOE-CBFO-94-1012*

- *CCP Transuranic Waste Quality Assurance Characterization Project Plan (QAPjP)*, CCP-PO-001
- *CCP Transuranic Waste Certification Plan*, CCP-PO-002
- Related NTS/CCP QA and technical implementing procedures (see Attachment 4)

2.2 PURPOSE

Audit A-04-04 was conducted to assess and re-evaluate whether the NTS/CCP retrievably stored waste characterization activities continue to comply with the WIPP HWFP requirements.

3.0 AUDIT TEAM AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Denis Miehl	CBFO QA Representative
Martin Navarrete	CBFO QA Representative
Pete Rodriguez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Tammy Bowden	Auditor, CTAC
Prissy Dugger	Auditor, CTAC
Norm Frank,	Auditor, CTAC
Porf Martinez	Auditor, CTAC
Jack Walsh	Auditor, CTAC
Chet Wright	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Karen Gaydosh	Technical Specialist, CTAC
B.J. Verret	Technical Specialist, CTAC

OBSERVERS

Ben Walker	Environmental Evaluation Group (EEG)
Steve Holmes	New Mexico Environment Department (NMED) Observer
Kevin Krause	NMED Observer
Bob Thielke	NMED Observer/EPA Inspector/Tech Law

4.0 AUDIT PARTICIPANTS

A pre-audit conference was held in the auditorium of the Skeen-Whitlock Building in Carlsbad, New Mexico, on October 6, 2003. Daily management briefings were held with NTS/CCP management to discuss the progress of the audit and potential deficiencies. The audit concluded with a post-audit conference held in the Skeen-Whitlock Building on October 9, 2003. A list of NTS/CCP personnel contacted during the course of the audit is included in Attachment 1.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy and Implementation

Audit 04-04 was performed to assess the continued ability of the NTS/CCP to characterize S5000 retrievably stored, contact-handled debris wastes at the NTS.

The characterization methods assessed were single-manifold HSG sampling and analysis, AK, RTR, and the NTS VE, segregation, and repackaging operations conducted in the NTS WEF. In addition, data review and validation were assessed, as well as the use of those data to: 1) perform data quality objective (DQO) reconciliation, 2) prepare a Waste Stream Profile Form (WSPF), and 3) perform data entry to the WWIS.

The audit team concluded that the applicable NTS/CCP activities, as described in the associated implementing procedures, satisfactorily meet the requirements contained in the HWFP. The deficiency identified in Section 6.1 has been satisfactorily resolved and closed. Also, while evaluating the QA program elements, the audit team identified the following three concerns: CDA 1 was related to a training and qualification appointment letter; CDA 3 involved conflicts in the *Software Code Management: Code Information Summary*; and CDA 4 concerned an incomplete records inventory and disposition schedule (RIDS) for an NTS records listing. These concerns were determined to be isolated, requiring remedial action only, and were satisfactorily corrected during the audit (CDA). Details of audit activities, including specific objective evidence reviewed, are described below and in the attached B6 checklist, which identifies the NTS/CCP program documents and procedures that ensure compliance with WAP requirements. Attachment 3 contains the objective evidence that was reviewed during the audit.

5.2 Technical Activities

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy as defined in the WAP is implemented by using controlled procedures. This audit assessed the continued ability of the NTS/CCP to characterize Summary Category Group S5000 debris waste streams. Objective evidence was selected and reviewed to evaluate the implementation of the associated characterization activities. This objective evidence included BDRs, sampling records, and training documentation for NTS/CCP personnel associated with gas sampling and analysis, RTR, VE, and WWIS data entry. Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) samples or information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program data quality objectives (DQOs)

- Reporting the final waste characterization information to the WIPP

The flow of data from point of generation to incorporation on the WSPF for each characterization technique was reviewed to ensure that all applicable requirements were included in the operating procedures. Specific procedures audited and the objective evidence reviewed are described in more detail in the following sections.

The NTS/CCP demonstrated compliance with the characterization requirements of the WAP through documentation that demonstrated proper implementation of the various characterization processes and activities. NTS/CCP provided combined sampling and analysis BDRs NT120202B and NT121902A (containing sampling and gas analytical batch information), radiography BDRs NTRTR0045, NTRTR0049, NTRTR0044, NTRTR0048, and NTRTR0052, and VE BDRs NT-VE-00008, NT-VE-00015, and NT-VE-00011. The project-level data V&V process was evaluated by reviewing the following BDRs (copies of all referenced BDRs are included in Attachment 3):

- HSG BDRs NT051602A, NT121102A, and NT120302B
- RTR BDRs NTS-0001, NTRTR0043, NTRTR0050
- VE BDRs NT-VE-00006, NT-VE-00016, and NT-VE-00017

The AK and the auditable records were reviewed in detail for a contact-handled TRU waste stream (Summary Category Group S5000). The AK record was reviewed to demonstrate that the required information was present and correctly interpreted. The BDRs cited above were used to demonstrate that the required information was present and correctly interpreted, as well as to demonstrate confirmation of AK, reconcile DQOs, prepare a WSPF, and transmit data to WIPP using the WWIS.

A WSPF and related summarized characterization information were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The form was completed using information from the various characterization processes. The WSPF was reviewed and approved by the CBFO when the waste stream had been fully characterized, and the site was approved to ship waste, however, no shipments have been made to date.

5.2.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist

Solids and soils/gravel waste streams were not included in the audit scope; therefore, no Summary Category Groups S3000 or S4000 waste will be characterized for disposal at WIPP until NTS/CCP procedures and processes have been audited and accepted by CBFO and a final audit report for those processes has been approved by the NMED.

5.2.3 Table B6-3 Acceptable Knowledge Checklist

This audit was performed to assess the continued ability of NTS/CCP to characterize Summary Category Group S5000 retrievably stored, contact-handled debris waste streams. Items on the AK checklist are intended to ensure that the NTS/CCP has an AK process in place to:

- Train personnel in data collection requirements
- Assemble collected data into a coherent narrative detailing the waste generation and constituents
- Segregate the waste into like waste streams
- Perform Resource Conservation and Recovery Act (RCRA) characterization for those waste streams
- Confirm those characterizations using sampling and analysis
- Provide an auditable set of records to support the characterization

The AK process was evaluated by reviewing AK summary reports, source documents, and other applicable documentation related to CH TRU waste that was generated at the Lawrence Livermore National Laboratory (LLNL) during nuclear weapons fabrication and materials research. The waste streams summarized include a current inventory of 1702 containers of TRU waste. The waste was originally generated in LLNL Building 251 (Heavy Element Facility), Building 332 (Plutonium Facility), and Building 419 (Hazardous Waste Management Facility). Specific AK documents include the AK Summary Report, NTS LLNL Waste, 1/6/03, and AK Confirmation Checklists and Accuracy Report, NTLLNL-S5400-332.

The AK checklist was completed, in part, by reviewing the documents cited above. Additional documentation supporting the AK summary documents and AK source document review summaries is contained in Attachment 3 to support the entries in Table B6-3.

The AK process includes provisions to identify information that conflicts with what is expected in a waste stream (confirmation processes) and a method by which these conflicts can be resolved. The audit team reviewed examples of the resolution of discrepancies identified in the AK record (AK Source Document Discrepancy Resolution) and examined the process for dealing with prohibited items in the debris waste stream. The discrepancy resolution procedure is CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

The procedures used by the site to assemble, evaluate, document, and reconcile sampling and analysis results include CCP-TP-001, *CCP Project Level Data Validation and Verification*; CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-003, *CCP Sampling Design and Data Analysis for RCRA Characterization*; and CCP-TP-005, *CCP Acceptable Knowledge Documentation*. These procedures were reviewed for adequacy, and their implementation was assessed during the audit. The AK requirements include procedure content and specific requirements for retrievably stored waste, and ensure that the AK summary includes all mandatory information required by the WAP.

Reports and records used to document the basis of NTS/CCP AK were evaluated; copies of pages used for objective evidence can be found in Attachment 3. The reports were found to be satisfactory and the records properly maintained as QA records.

Attachment 3 contains a list of AK documentation reviewed in support of Procedure CCP-TP-005.

The confirmatory test process was also reviewed and BDRs were examined for three debris drums that had been processed through the complete required confirmatory testing, including project level V&V. The audit team examined the CBFO-approved WSPF, the Characterization Information Summary (CIS), and the DQO checklists. Also reviewed were the processes for UCL₉₀ determination, NDE/VE comparisons, and determination of lots.

The audit team identified one concern related to discrepancies in an AK summary report. This concern was determined to be isolated, requiring remedial action only, and was satisfactorily corrected during the audit (CDA 2). This CDA is described in Section 6.2 in further detail.

The audit team determined that the AK procedure, confirmation processes for the reconciliation of DQOs, and the sample design and data analysis processes were adequate with respect to WAP requirements, satisfactorily implemented, and effective in producing the requisite AK information.

5.2.4 Table B6-4 Headspace Gas Checklist

This audit was performed to assess the continued ability of the NTS/CCP to characterize Summary Category Group S5000 retrievably stored debris waste streams. The audit team evaluated the sampling and analysis of retrievably stored debris waste streams and the sampling and analysis procedures and operations for a single-sample manifold system.

The manifold system automatically penetrates the drum using a specially designed, self-drilling, self-tapping hollow core filter vent. The filter or plug is installed into a socket inside the glovebox power head prior to drum processing. Samples are collected when the power head assembly bores through the drum lid and lowers the filter to sample depth. At sample depth, a flow path is created from inside the plastic drum liner and the annular space, through a hollow, fluted filter vent stem, and into the seal housing inlet port of the sample manifold. The system uses gas chromatography/mass spectrometry (GC/MS) (to determine hazardous constituents required by the WAP), photo-ionization detector (PID) (to determine cleanliness), purge gas (pure nitrogen), and calibrated pressure/vacuum gauges. Proper sample collection is verified by collecting QC samples and evaluating the data against specific quality assurance objectives (QAOs). Sampling QAOs are assessed after the QC samples have been analyzed, and are documented in the analytical BDRs.

The NTS/CCP procedures governing on-line sampling and analysis activities and data review and validation include:

- CCP-TP-007, *CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure*

- CCP-TP-009, *CCP Single Sample Manifold Data Handling Procedure*
- CCP-TP-011, *CCP Logbooks and Notebooks*
- CCP-TP-029, *CCP Single-Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration*
- CCP-TP-032, *CCP Single Sample Manifold Data Validation Procedure*
- CCP-TP-056, *CCP HSG Performance Demonstration Plan*

HSG sampling and analysis activities were evaluated and verified through review and examination of the documents and records generated as a result of procedure implementation. BDRs NT120202B and NT121902A were reviewed to evaluate sampling and analysis results against WAP requirements. Documentation specific to these activities (i.e., calibration records, maintenance logbooks, PDP results, and instrument logbooks), were reviewed to ensure that the mobile operations met QA requirements, as specified in the WAP. Copies of the applicable documentation reviewed are included in the BDRs. Personnel training records were also reviewed for adequacy and compliance to WAP requirements.

The audit team completed the B6-4 checklist while assessing implementation of the applicable procedures. Sampling and analysis operations were verified through review of documentation to ensure conformance to requirements.

The audit team identified one deficiency wherein an OCS gas cylinder was used beyond its expiration date. This CAQ was determined to be non-significant and has been satisfactorily resolved and closed (CAR 04-003, Section 6.1).

A recommendation for all certificates of analysis to be kept by the CCP records organization was offered for management consideration (Recommendation 1, Section 7.2).

Overall, the audit team concluded that the HSG sampling and analysis operations and processes at NTS/CCP were adequate with respect to WAP requirements, satisfactorily implemented, and effective.

5.2.5 Table B6-5 Radiography Checklist

This audit was performed to assess the continued ability of the NTS/CCP to characterize Summary Category Group S5000 retrievably stored debris waste streams. The NTS/CCP radiography operations were performed using a real-time system previously located in a mobile RTR trailer at Area 5 at the NTS. The following NTS/CCP procedures governing the mobile RTR operations were evaluated:

- CCP-TP-045, *CCP RTR #5 Radiographic Inspection Operating Procedure*
- CCP-TP-028, *CCP Radiographic Test and Training Drum Requirements*

The NTS/CCP RTR operations were evaluated and verified through review and examination of the documents and records generated as a result of procedure implementation, and completion of the Table B6-5 radiography checklist. The following

BDRs and associated videotapes were reviewed and evaluated to ensure that the following specific WAP requirements were met: NTRTR0045, NTRTR0049, NTRTR0044, NTRTR0048, and NTRTR0052. Training course material and the RTR test drums were also reviewed for adequacy and compliance to WAP requirements.

The audit team concluded that the NTS/CCP RTR procedures and processes were adequate, satisfactorily implemented, and effective.

5.2.6 Table B6-6 VE Checklist

This audit was performed to assess the continued ability of the NTS/CCP VE process to characterize Summary Category Group S5000 retrievably stored debris waste streams. The NTS VE process was evaluated to determine the effectiveness of VE as a confirmation of the RTR process and as a characterization method that can be used in lieu of RTR. VE performed as a confirmation of RTR or in lieu of RTR is recorded on audio/videotape and the results are documented on standard forms in accordance with Procedure CCP-TP-003, *CCP Sampling Design and Data Analysis for RCRA Characterization*, and CCP-TP-062, *CCP TRU Waste Visual Examination, Segregation and Repackaging*.

The NTS/CCP VE activities were evaluated and verified through review and examination of the documents and records generated as a result of procedure implementation, and completion of the Table B6-6 VE checklist. The following BDRs and associated videotape records were examined and evaluated to ensure that the following specific WAP requirements were met: NT-VE-00008, NT-VE-00015, and NT-VE-00011.

The training course content for operators and VE experts was reviewed to verify that all WAP requirements were included. Training files were reviewed for VE experts and operators to verify that individuals responsible for performing the visual examination of drums had been properly trained and qualified.

The audit team determined that the VE process used for S5000 waste was adequate, satisfactorily implemented, and effective.

5.3 General

Results of Previous Audits

The Observations and CARs resulting from the previous NTS/CCP certification audit A-02-15 were examined and it was determined that the conditions identified in the audits had been corrected.

Changes in Program or Operation

The HWFP portions of the audit were performed in accordance with the latest B6 checklists, which incorporate all the Class 1, Class 2, and Class 3 modifications to the

HWFP. NTS/CCP has not implemented any changes in the program or operation, and the equipment was demobilized from the NTS in early calendar 2003 and redeployed to other sites.

New Programs or Activities Being Implemented

No new programs or activities have been implemented since that last certification audit.

Changes in Key Personnel

No changes in NTS/CCP key personnel have occurred since the last certification audit. NTS/CCP has certified additional personnel as alternates for the key positions.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports

During the audit, the audit team may identify conditions adverse to quality (CAQ) and document such conditions on corrective action reports (CARs).

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

One WAP-related deficiency, requiring the issuance of one CAR, was identified during the audit. The CAR describes an OCS gas cylinder ALM 067164 (certified gas standard) that was used beyond its expiration date as shown on the certificate of analysis. This CAR was deemed to be non-significant because the waste has not been shipped, and the technical quality of the data was not impacted. This CAQ has been corrected and the CAR has been closed (CBFO CAR 04-003).

6.2 Deficiencies Corrected During the Audit (CDAs)

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant using the following definitions. Once a determination is made that the CAQ is not significant, the audit team members, in conjunction with the ATL, determine if the CAQ is an isolated case requiring only remedial action and therefore can be corrected during the audit (CDA). Upon determination that the CAQ is isolated, the audit team members, in conjunction with the ATL, evaluate/verify any objective evidence/actions submitted or taken by the audited organization and determine if the condition was corrected in acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Corrected During the Audit (CDA) – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and where correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or dated (isolated), and one or two individuals who have not completed a reading assignment.

Four WAP-related discrepancies that resulted in CDAs were identified and corrected during this audit, and are described below.

CDA 1

An appointment letter for Site Project Quality Assurance Officer/Facility Quality Assurance Officer (SPQAO/FQAO) was not on file for the individual validating NCR-NTS-0011-03 –R0. There is also no reference in CCP-QP-002 Rev. 13, *CCP Training and Qualification Plan*, for notification to the Training Specialist, of an appointment letter for the position of the FQAO. This concern was satisfactorily resolved by issuance of an appointment letter for the FQAO position and initiation of procedure changes to CCP-QP-002 via the freeze file system.

CDA 2

In the NTS AK Summary Report CCP-AK-NTS-001 R5, there is a discrepancy in the assignment of HWN DO19 to waste stream NTLLNL S5400-252. Table 4-2, p.35, does not list the code but the text in Section 5.4.3, p.60, assigns the code D019 to the stream. This concern was satisfactorily resolved by making the appropriate changes to the AK summary reports and the initiation of procedure changes to CCP-AK-NTS-001 via the freeze file system.

CDA 3

The “Software Code Management: Code Information Summary” has main headings for software category in addition to a column for software category. The information in these columns is sometimes conflicting. The main heading “System Software” has Excel sheets listed as commercial software in the column. This concern was resolved by a revising the “Software Code Management: *Code Information Summary*” and correcting both the main headings and the category column.

CDA 4

The RIDS for NTS did not include the QA records listed in CCP-TP-030, R9 for Certification Module or Payload Characteristics. All required records were being retained in QA records. This concern was satisfactorily resolved via initiation of a CCP Records Inventory Worksheet to include the records on the next revision of the RIDS.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify conditions that warrant input by the audit team to the audited organization regarding potential problems or suggestions for improvement. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations or Recommendations, using the following definitions. Once a determination is made, the audit team members, in conjunction with the ATL, categorize the conditions appropriately.

Observation – A condition that, if not controlled, could result in a CAQ.

Recommendation – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

7.1 Observations

The audit team made no Observations as a result of the audit.

7.2 Recommendations

The audit team made one Recommendation for improvement of the CCP processes and procedures. The Recommendation, provided to CCP management for consideration, is described below:

Recommendation 1

Certificates for seven of eight certified gases/liquid standards were not available on-site at the CCP offices. The audit team therefore recommended that all certificates of analysis be kept by the CCP records organization.

8.0 LIST OF ATTACHMENTS

Attachment 1: Personnel Contacted During the Audit

Attachment 2: Corrective Action Supporting Documentation

Attachment 3: Objective Evidence

Attachment 4: NTS/CCP Implementing Documents/Procedures

PERSONNEL CONTACTED DURING THE AUDIT				
NAME	TITLE/ORG	PRE AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Aldrich, Beth	L&M Document Services		X	
Ashford, Angela	L&M Doc. Services/CCP		X	
Becker, David	CCP AK/LANL	X	X	
Bickerstaff, Sheila	CCP Record Custodian	X	X	X
Campos-Hernandez, Lisa	CCP/WWIS Data Entry		X	
Carter, Donna	L&M/CCP		X	
Clifton, Erin	L&M/CCP		X	
Colarusso, Angela	NNSA/NV TRU Project Manager			X
Fesmire, Courtland	CCP/SPM-NTS	X	X	X
Fisher, A.J.	CCP QA Manager	X	X	X
Freeze, Deborah	CCP Training Specialist	X	X	X
Franco, Joe	CCP/Project Manager	X	X	X
Gomez, Christine	CCP/WTS/SPQAO		X	X
Gran, J.F.	CCP SPQAO		X	
Guerin, David	CCP AK Expert		X	
Haar, David	CCP Program Manager	X	X	X
Hackney, Leanne	CCP/WTS		X	
Hedahl, Tim	Deputy Manager, NTP		X	X
Mooney, Dean	CCP/SPQAO		X	
Peters, Kevin	CCP/Tech. Specs., AKE	X	X	X

PERSONNEL CONTACTED DURING THE AUDIT				
NAME	TITLE/ORG	PRE AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Porter, Larry	CCP/WTS	X	X	X
Price, Lisa	L&M Document Services		X	
Quintana, Doris	CCP SPQAO			X
Quintana, Irene	CCP SPQAO	X	X	
Rose, Steve	CCP/WTS	X	X	X
Schoen, Doug	CCP-Procurement		X	X
Sharif, Farok	Manager, NTP	X	X	X
Smith, Tyrone	CCP/WTS-M&TE Custodian		X	
Speed, Dave	WWIS Team Lead		X	
Stepzinskie, Chuck	CCP Tech. Writer, L&M		X	
Stroble, J.R.	CCP/WTS, WCO Manager, Project Cert.		X	

AUDITED CCP IMPLEMENTING DOCUMENTS/PROCEDURES		
Number of Documents	Procedure Number/Rev. No.	DOCUMENT TITLE
1	CCP-PO-002	CCP Transuranic Waste Certification Plan
2	CCP-PO-008	CCP Quality Assurance Administrative Program
3	CCP-PO-009	CCP/NTS Interface Document
4	Bechtel Nevada/WTS Contract/ Statement of Work	Bechtel Nevada, NTS Statement of Work for Characterization of NTS TRU Waste
5	CCP-QP-001	CCP Graded Approach
6	CCP-QP-002	CCP Training and Qualification Plan
7	CCP-QP-004	CCP Corrective Action Management
8	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control
9	CCP-QP-006	CCP Corrective Action Reporting and Control
10	CCP-QP-008	CCP Records Management
11	CCP-QP-009	CCP Work Control Process
12	CCP-QP-010	CCP Document Preparation, Approval and Control
13	CCP-QP-011	CCP Notebooks & Logbooks
14	CCP-QP-015	CCP Procurement
15	CCP-QP-016	CCP Control of Measuring, Testing, and Data Collection Equipment
16	CCP-QP-017	CCP Identification and Control of Items
17	CCP-QP-018	CCP Management Assessments
18	CCP-QP-019	CCP Quality Assurance Reporting to Management
19	CCP-QP-021	CCP Surveillance Program
20	CCP-QP-022	CCP TRU Software Quality Assurance
21	CCP-QP-023	CCP Handling, Storage, and Shipping
22	CCP-QP-026	CCP Inspection Control
23	CCP-QP-027	CCP Test Control
24	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
25	CCP-TP-001	CCP Project Level Data Validation and Verification
26	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
27	CCP-TP-003	CCP Sampling Design and Data Analysis for RCRA Characterization
28	CCP-TP-005	CCP Acceptable Knowledge Documentation
29	CCP-TP-007	CCP Single Sample Manifold Headspace Gas Sampling and Analysis Procedure
30	CCP-TP-009	CCP Single Sample Manifold Data Handling Procedure
31	CCP-TP-028	CCP Radiographic Test and Training Drum Requirements
32	CCP-TP-029	CCP Single-Sample Manifold Headspace Gas Sampling and Analysis Methods and Equipment Calibration
33	CCP-TP-030	CCP WWIS Data Entry and TRU Waste Certification
34	CCP-TP-032	CCP Single Sample Manifold Data Validation Procedure
35	CCP-TP-045	CCP RTR #5 Radiography Inspection Operating Procedure
36	CCP-TP-056	CCP HSG Performance Demonstration Plan
37	CCP-TP-061	CCP TRU Waste Container Inspection and Control at NTS
38	CCP-TP-062	CCP TRU Waste Examination, Segregation, and Repacking at the NTS WEF
<u>39</u>	<u>CCP-PO-001</u>	<u>CCP Transuranic Waste Characterization Quality Assurance Project Plan</u>

NMED COMMENTS ON THE
ARGONNE NATIONAL LABORATORY – EAST
CENTRAL CHARACTERIZATION PROJECT (ANL-E/CCP)
FINAL AUDIT REPORT A-04-03

1. Pertaining to questions 8, 11, 12 ... and 313 cited a procedure "CCP-PO-001." Procedure CCP-PO-001 was not included with the audit report.

CCP-PO-001, CCP Transuranic Waste Characterization Quality Assurance Project Plan, is provided as Attachment 1.

2. Pertaining to question 12, the reference cited was CCP-TP-001, Section B-1c. This Section B-1c does not exist.

This was a typographical error. Procedure CCP-TP-001 was intended to read: CCP-PO-001, which has been included in this package, as Attachment 1. The checklist has been revised accordingly.

3. Pertaining to questions 22, 27, 29 and 222a, the reference cited was CCP-TP-034, Attachment 10, #2046. The number 2046 does not exist.

The checklist was revised to cite CCP-TP-034, Section 4.1.3, and Attachment 10, Items 41-47, in lieu of #2046.

4. Pertaining to question 23, the reference cited was CCP-TP-003, Section 4.1. Although 4.1 is appropriate, NMED feels that adding Section 4.2 would further clarify the question.

CCP-TP-003, Section 4.2 was added to the checklist.

5. Pertaining to question 45, the reference cited was CCP-QP-005, Section 2.3 through 2.12. Section 2.12 is nonexistent.

CCP-QP-005, Sections 2.4, 2.5 and 3.2 were added to the checklist.

6. Pertaining to question 148, the referenced cited was CCP-TP-002, Section 4.2.1. The section does not answer the question.

This was a typographical error. The entry was corrected to read: CCP-QP-002, Section 4.2.1.

7. Pertaining to question 164, the reference cited was CCP-TP-005, Section 4.2. The cited section does not totally answer the question.

CCP-TP-003, Section 4.2.1 and 4.2.2 were added to the checklist.

8. Pertaining to question 168, the reference cited was CCP-TP-005, Sections 4 and 4.6. The citation is satisfactory, but another reference would further clarify the answer.

Additional references to further clarify the answer, CCP-TP-005, Sections 3.1.1 and 4.4.2, were added.

9. Pertaining to questions 170, 171, ... and 177, the reference cited was CCP-QP-020, Section 1.0. The cited procedure was not included with the report.

CCP-QP-020, CCP Independent Assessments, is provided as Attachment 2.

10. Pertaining to question 184, the cited reference is CCP-TP-031 Section 4.7[c]. There is no such section within the procedure.

The citation was changed to: Sections 4.7.4[A] through [C].

11. Pertaining to question 196, the cited reference is CCP-TP-031 but no specific section.

Section 4.7.5[C], and Table 17 to A & B were added to the checklist.

12. Pertaining to question 199, the cited reference is CCP-TP-031, Section 2.6.1. The cited reference is satisfactory, but another reference would further clarify the answer.

The checklist was revised to read: A-C & E: CCP-TP-031, Sections 4.6.1, 4.8, 4.9, and 4.11 through 4.16; D: N/A. Comment: ANL-E/CCP uses online sampling.

13. Pertaining to question 200, the cited reference is CCP-TO-034. This particular procedure was not inclusive in the audit report.

This was a typographical error. CCP-TO-034 was revised to read: CCP-TP-034.

14. Pertaining to question 220, the cited reference was CCP-TP-031. This particular procedure does not seem to totally answer the question.

The checklist was revised to read: A & B: CCP-TP-031, Sections 4.12 (OCS Dup.), 4.20.25 (Field Dup) & Table 2 (PDP); C & G: Sections 4.3 (MDL), 4.10.20 & Table 7 (PRQL); D: CCP-TP-034, Section 4.1 through 4.4, Attachment 2, and CCP-TP-056 (PDP); E: Section 2.3 & Table 5 (stds), Table 2 (QC samples criteria and PDP); and F: Table 2 (blank limits). Comment: A&

B: OCS dup. Replaces lab dup & LCS replicates. D, E & F: Att. 2, last QAO question verifies comparability, completeness and representativeness.

15. Pertaining to question 222, the cited reference was CCP-TP-001 Section 4.3. The question is not totally answered by the cited reference.

CCP-TP-003, Section 3.1.1[C], and 4.3 was added to the checklist.

16. Pertaining to question 222b, the cited reference was CCP-TP-034. The question is not totally answered by the cited procedure.

"A." is the only question pertinent, since ANL-E/CCP does not composite samples, as noted in B6-4 #222b Comment.

17. Pertaining to question 295, the cited reference was CCP-TP-003 Section 4.6. The question is not totally answered by the cited procedure.

In addition to CCP-TP-003, Section 4.6, CCP-PO-001, Section B1-3b(3) was added to the checklist.

U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

REVISED FINAL AUDIT REPORT
OF
ARGONNE NATIONAL LABORATORY-EAST
UTILIZING THE
CENTRAL CHARACTERIZATION PROJECT

AUDIT NUMBER A- 04-03
October 6-9, 2003

FINAL AUDIT REPORT OF WASTE CHARACTERIZATION IN
ACCORDANCE WITH THE HAZARDOUS WASTE FACILITY PERMIT



Prepared by: *A. Axinn*
Annabelle Axinn
Audit Team Leader

Date: *7/21/04*

Approved by: *Ava L. Holland*
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Quality Assurance Manager

Date: *7/21/04*

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-04-03 was conducted to re-evaluate the adequacy, implementation, and effectiveness of the Argonne National Laboratory-East Central Characterization Program (ANL-E/CCP). This audit was conducted October 6 – 9, 2003, in Carlsbad, New Mexico, and re-evaluated the CCP transuranic (TRU) waste characterization and certification activities related to Summary Category Groups S3000 homogeneous solid waste and S5000 retrievably stored debris waste streams. The audit team assessed the adequacy, implementation, and effectiveness of both technical and quality assurance (QA) activities. Solids sampling and analysis characterization activities for waste streams from Summary Category Group S3000 were assessed during previous CBFO Audits A-03-15 and A-03-26.

With the absence of physical characterization equipment, the audit scope and methodology consisted of an extensive review of the batch data reports (BDRs) and other documentation associated with each of the characterization techniques. Evaluation of completed BDRs and associated documentation provided objective evidence of proper implementation of the various characterization processes. This assessment confirmed the CCP programmatic interfaces established with ANL-E, the CCP administrative controls needed to manage the characterization activities, and the characterization processes and activities previously conducted at ANL-E. The activities evaluated included characterization with mobile waste inspection tomography (WIT), headspace gas (HSG) sampling and analysis using a mobile automated manifold system with gas chromatography/mass spectrometry (GC/MS) and gas chromatography/thermal conductivity detector (GC/TCD) methods, and mobile visual examination (VE) equipment. In addition, the process for developing the Acceptable Knowledge (AK) documentation was evaluated.

The scope also included the review of documentation, resulting from the use of an independent analytical laboratory, the Idaho National Engineering and Environmental Laboratory (INEEL), performing solids sampling and analysis for the ANL-E/CCP (see previous Audit Reports A-03-15 and A-03-26). It should also be noted that in Audit A-03-15, CBFO audited the INEEL program for solid sampling and analysis. While CBFO has deemed these programs for solids sampling and analysis, acceptable, ultimate approval and certification is pending approval from the New Mexico Environment Department (NMED). Consequently, no solid wastes can be shipped from ANL-E until NMED approves the previous INEEL and ANL-E/CCP "solids audits."

The audit team concluded that the CCP technical and QA procedures were adequate relative to the flow-down of requirements from the CBFO Quality Assurance Program Document (QAPD), and the Waste Analysis Plan (WAP) of the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP). The audit team also concluded that the assessed activities were being satisfactorily implemented in accordance with the CCP Quality Assurance Project Plan (QAPjP) and the implementing procedures. The established technical processes, and the QA program and procedures were also determined to be satisfactorily implemented and effective.

The audit team identified one condition adverse to quality (CAQ) resulting in the issuance of one CBFO corrective action report (CAR). The CAR identified adverse conditions concerning a missing RTR videotape documenting the examination of the test drum for ANL-E/CCP RTR operators. This CAR was deemed to be non-significant because the operators were confirmed to be qualified through other qualification documentation, and has been satisfactorily resolved. Seven isolated deficiencies requiring only remedial corrective actions were corrected during the audit (CDA). No Observations resulted from the audit. Two Recommendations are being offered for management consideration. The CAR, CDAs, and Recommendations are described in Sections 6 and 7.

It should be noted that prior to any future and acceptable characterization by or for the ANL-E/CCP, a CBFO surveillance would be scheduled and performed to verify that the equipment, processes and procedures remain as currently certified and approved for S5000 debris waste. As for S3000 solids, certification and approval is pending NMED approval of CBFO Audits A-03-15 and A-03-26.

2.0 SCOPE AND PURPOSE

2.1 Scope

CBFO Audit A-04-03 was conducted to re-evaluate the adequacy, implementation and effectiveness of the CCP QA Program and technical processes used to perform TRU waste characterization activities for retrievably stored debris and homogeneous solids waste generated at ANL-E, in accordance with the requirements contained in the WIPP HWFP. Compliance was demonstrated and documented by completing the attachment B6 checklist for the applicable ANL-E/CCP activities.

The following elements were evaluated in accordance with the CBFO QAPD:

- Organization/QA Program Implementation
- Personnel Qualification and Training
- Grading Program
- Documents & Records
- Procurement
- Control of Measuring and Test Equipment
- Nonconformance/Corrective Action
- Audits/Assessments
- Sample Control
- Software Quality Assurance

The following CBFO technical characterization elements were evaluated in accordance with the WAP:

- Data Verification and Validation (V&V)

AK
NDE (RTR)
VE
HSG Sampling and Analysis
Solid Sampling and Analysis
Sampling Design
Performance Demonstration Program (PDP)
Waste Stream Profile Forms
WIPP Waste Information System (WWIS) Data Entry

Evaluation of the ANL-E/CCP TRU Waste Characterization Program was based on current revisions of the following documents:

- *Waste Isolation Pilot Plant Hazardous Waste Facility Permit*
- *Quality Assurance Program Document (QAPD)*, DOE CBFO-94-1012
- *CCP Transuranic Waste Quality Assurance Characterization Project Plan (QAPjP)*, CCP-PO-001
- *CCP Transuranic Waste Certification Plan*, CCP-PO-002
- Related ANL-E/CCP Quality Assurance and technical implementing procedures (Attachment 4)

3.0 AUDIT TEAMS AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Dennis Miehl	CBFO QA Representative
Martin Navarrete	CBFO QA Representative
Pete Rodriguez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Tammy Bowden	Auditor, CTAC
Prissy Dugger	Auditor, CTAC
Norm Frank	Auditor, CTAC
Porf Martinez	Auditor, CTAC
Jack Walsh	Auditor, CTAC
Chet Wright	Auditor, CTAC
Dick Blauvelt	Technical Specialist, CTAC
Karen Gaydosh	Technical Specialist, CTAC
B.J. Verret	Technical Specialist, CTAC

OBSERVERS

Ben Walker	EEG Observer
Steve Holmes	NMED Observer
Kevin Krause	NMED Observer
Bob Thielke	NMED Observer / EPA Inspector/Tech Law

4.0 AUDIT PARTICIPANTS

A pre-audit conference was held in the auditorium of the Skeen-Whitlock Building on October 6, 2003. Daily management briefings were held with ANL-E/CCP management to discuss the progress of the audit and potential deficiencies. The audit was concluded with a post-audit conference held in the Skeen-Whitlock Building on October 9, 2003. A list of ANL-E/CCP personnel contacted during the course of the audit is included in Attachment 1.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy and Implementation

This audit was performed to assess ANL-E/CCP's continued ability to characterize S3000 contact-handled homogeneous solids and S5000 contact-handled mixed debris wastes characterized at the ANL-E, and INEEL analytical laboratories (for solids sampling and analysis), as applicable.

The audit team concluded that the applicable ANL-E/CCP TRU waste characterization activities, as described in the associated ANL-E/CCP implementing procedures, adequately address the requirements contained in the HWFP. The deficiency identified in Section 6.1 has been satisfactorily resolved and closed. Details of audit activities, including specific objective evidence reviewed, are described below and in the attached B6 checklist. The B6 checklist identifies the ANL-E/CCP program documents and procedures in which the WAP requirements are met. Attachment 3 contains examples of the objective evidence reviewed during the audit.

5.2 Technical Activities

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy as defined in the WAP, is implemented by using controlled procedures. This audit was performed to assess ANL-E/CCP's continued ability to characterize Summary Category Groups S3000 (homogeneous solid waste) and S5000 (debris waste streams). Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. This objective evidence included batch data reports, sampling records, and training documentation for ANL-E/CCP personnel associated with gas sampling and analysis, RTR, VE, and WWIS data entry. Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) samples or information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office

- Comparing the data against Program DQOs
- Reporting the final waste characterization information to WIPP

The flow of data from the point of generation to the incorporation on the WSPF for each characterization technique was reviewed to ensure that all applicable requirements were included in the operating procedures. Specific procedures audited and the objective evidence reviewed are described in more detail in the following sections.

The ANL-E/CCP demonstrated compliance with the characterization requirements of the WAP through documentation, which demonstrated proper implementation of the various characterization processes and activities. ANL-E/CCP provided combined sampling and analysis batch data reports AEHSG01081503a and AEHSG01082203a (containing sampling and gas analytical batch information); radiography batch data reports AERTR029, AERTR040, AERTR038, AERTR024, AERTR055, AERTR056, AERTR007 and AERTR015; and VE batch data reports: AEMover042903a, AEMover060503a, AEMover070703a, AEMover071703a and AEMover080103a. The project-level data verification and validation process was evaluated by reviewing the following batch data reports (copies of all the referenced batch data reports are included in Attachment 3):

- RTR batch data reports #'s: AERTR030, AERTR050 and #AERTR044
- VE batch data reports #'s: AEMover062603c, AEMover071703c and AEMover71703b
- HSG batch data reports #'s: AEHSG01052703a, AEHSG01042803a and AEHSH01050703a

The AK and the auditable records were reviewed in detail for waste streams S3000 and S5000. The AK record was reviewed to demonstrate that the required information was present and correctly interpreted. Batch data reports cited above, were used to demonstrate confirmation of AK, reconcile DQOs, prepare a WSPF, and transmit data to WIPP using the WWIS.

A WSPF and related summarized characterization information were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The form was completed using information from characterization processes. An actual WSPF has been prepared and was submitted to CBFO prior to any shipments, as required. The form was reviewed and approved by the CBFO when the waste stream had been fully characterized, and the site was approved to ship waste.

Demonstration of AK confirmation, DQOs reconciliation, preparation of a WSPF, and the transmittal of data to WIPP for the S3000 homogeneous solids waste stream was also satisfactorily verified during the CBFO audit A-03-26. August 26-27, 2003.

5.2.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist

The audit team evaluated the solids sampling and analysis processes through review of previously mentioned BDRs and AK records. Also, audit A-03-26 was performed (8/26-27/03), to assess the ANL-E/CCP ability to properly implement the use of the INEEL independent analytical laboratory services, perform sample design and reconciliation of DQOs, and complete the required AK confirmation activities for the homogeneous solid waste stream. The audit team evaluated the ANL-E/CCP incorporation of the INEEL independent analytical laboratory services to provide solids sampling and analysis and verified the interfaces to ensure that the laboratory data were adequate to complete the waste characterization and AK confirmation process.

While CBFO has deemed the solids sampling and analysis program acceptable, ultimate approval and certification is pending approval from the New Mexico Environment Department (NMED). Consequently, no solid wastes can be shipped from ANL-E until NMED approves the previous INEEL and ANL-E/CCP "solids audits." (A-03-15 and A-03-26 respectively)

5.2.3 Table B6-3 Acceptable Knowledge Checklist

This audit was performed to assess the continued ability of ANL-E/CCP to characterize S3000 and S5000 homogeneous solids and retrievably stored debris waste streams. Items on the AK checklist are intended to ensure that the ANL-E/CCP has an AK process in place to:

- Train personnel in the data collection requirements
- Assemble collected data into a coherent narrative detailing the waste generation and constituents
- Segregate the waste into like waste streams
- Perform Resource Conservation and Recovery Act (RCRA) characterization for those waste streams
- Confirm those characterizations using sampling and analysis
- Provide an auditable set of records to support the characterization

The AK process was evaluated by reviewing AK summary reports, source documents, and other applicable documentation related to CH mixed debris (362 55-gallon drums; ~75 cubic meters) and CH mixed homogeneous solids (70 55-gallon drums and 2 85-gallon overpack waste containers; ~15 cubic meters). Specific AK documents included: CCP-AK-ANLE-001, *CCP Acceptable Knowledge Summary Report for Argonne National Laboratory-East Contact-Handled TRU Waste Facility Maintenance and Laboratory Operations* and CCP-AK-MURR-01, *CCP Acceptable Knowledge Summary Report for Missouri University Research Reactor TRUMP-S Project*.

The AK checklist was completed, in part, by reviewing the documents noted above. Additional documentation supporting the AK summary documents and AK source

document review summaries are contained in Attachment 3 to support the entries in Table B6-3.

The AK process includes provision to identify information that conflicts with what is expected in a waste stream (confirmation processes) and a method by which these conflicts can be resolved. The audit team reviewed several examples of the resolution of discrepancies identified in the AK record and examined the process for dealing with prohibited items in the debris waste stream. The discrepancy resolution procedure is CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

The procedures which are used by the site to assemble, evaluate, document, and reconcile sampling and analysis results include; CCP-TP-001, *CCP Project Level Data Validation and Verification*; CCP-TP-002, *CCP Reconciliation of DQOs and Reporting Characterization Data*; CCP-TP-003, *CCP Sampling Design and Data Analysis for RCRA Characterization*; and CCP-TP-005, *CCP Acceptable Knowledge Documentation*. These procedures were reviewed for adequacy, and their implementation was assessed during the audit. The AK requirements include procedure content and specific requirements for retrievably stored waste, and ensure that the AK summary includes all mandatory information required by the WAP.

Reports and records used to document the basis of ANL-E/CCP AK were evaluated; copies of pages used for objective evidence can be found in Attachment 3. The reports were found to be satisfactory and the records properly maintained as QA records. Attachment 3 contains a list of AK documentation reviewed in support of Procedure CCP-TP-005.

The confirmatory test process was also reviewed and BDRs were examined for three debris drums that had been processed through the complete required confirmatory testing, including project level V&V. The audit team examined the CBFO-approved waste stream profile form for mixed debris, including the following attachments: an AK Summary, the Characterization Information Summary (CIS) and the DQO checklists. Also reviewed were the processes for UCL₉₀ determination, NDE/VE comparison reports, an AK Accuracy Report and determination of lots.

The audit team identified concerns related to AK Attachment 5, Hazardous Constituents, and corresponding information in the AK Summary Report. The information in the summary was either incomplete or inconsistent when compared to the information in the attachment. These concerns were determined to be isolated; requiring remedial action only and were satisfactorily corrected during the audit (CDA 1, Section 6.2).

The audit team determined that the AK procedure, confirmation processes for the reconciliation of DQOs, and the sample design and data analysis processes were adequate with respect to the WAP requirements, satisfactorily implemented, and effective in producing the requisite AK information.

5.2.4 Table B6-4 Headspace Gas Checklist

This audit was performed to assess the continued ability of the ANL-E/CCP to characterize Summary Category Groups S3000 homogeneous solid waste and S5000 retrievably stored debris waste streams. The audit team evaluated the sampling and analysis procedures and operations for organic and inorganic HGS, as performed by the CCP automated manifold system. The CCP HSG sampling operation utilizes a mobile automated manifold system with gas chromatography/mass spectrometry (GC/MS) and gas chromatography/thermal conductivity detector (GC/TCD) methods. The areas verified, through review of documentation, were drum preparation, HGS sampling and analysis, and filter change. The following procedures were evaluated:

- CCP-TP-011, *CCP Logbooks and Notebooks*
- CCP-TP-031, *CCP Headspace Gas Sampling Using Automated Manifold*
- CCP-TP-034, *CCP HSG Data Generation and Batch Data Reporting*
- CCP-TP-039, *CCP Preparing and Handling Waste Drums for Headspace Gas*
- CCP-TP-056, *CCP HSG Performance Demonstration Plan*

HGS sampling and analysis activities were evaluated and verified through review and examination of the documents and records generated as a result of procedure implementation. The following batch data reports were reviewed to evaluate sampling and analysis results against WAP requirements: AEHSG01081503a and AEHSG01082203a. Documentation specific to these activities (e.g., calibration records, maintenance logbooks, and instrument logbooks) were reviewed to ensure that the mobile operations met QA requirements, as specified in the WAP. Copies of the applicable documentation reviewed are included in the batch data reports.

The audit team completed the B6-4 checklist while assessing implementation of the applicable procedures. Sampling and analysis operations were observed and records from these activities were evaluated for accuracy and conformance to requirements.

Two issues were identified that relate to drum duplicate RPD data not being "Z" flagged, and use of a calibration gas past its expiration date (CDAs 3 and 4, Section 6.2). The issues were determined to be isolated deficiencies and were satisfactorily corrected during the audit (CDA).

A recommendation regarding certificates of analysis for certified gases/liquids, to be kept by the CCP records group, was offered for consideration. (Recommendation 2, Section 7.2)

The audit team determined that the HSG sampling and analysis processes at ANL-E/CCP were adequate with respect to WAP requirements, satisfactorily implemented, and effective.

5.2.5 Table B6-5 Radiography Checklist

This audit was performed to assess ANL-E/CCP's continued ability to characterize S3000 and S5000 homogeneous solids and retrievably stored debris waste. ANL-E/CCP radiography operations are performed using a mobile WIT system/RTR system. The following ANL-E/CCP procedures governing the mobile RTR operations were evaluated:

- CCP-TP-045, *CCP RTR #5 Radiography Inspection Operation Procedure*
- CCP-TP-028, *CCP Radiographic Test and Training Drum Requirements*

The ANL-E/CCP RTR operations were evaluated and verified through review and examination of the documents and records generated as a result of procedure implementation. The following batch data reports and associated videotapes were reviewed and evaluated to ensure that specific WAP requirements were met: AERTR029, AERTR040, AERTR038, AERTR024, AERTR055, AERTR056, AERTR007 and AERTR015. These reports are included in Attachment 3. Training course material and the RTR test drums were also reviewed for adequacy.

One deficiency was noted during the assessment and verification of the videotape, documenting the examination of the test drum for ANL-E RTR operators. This CAQ was determined to be non-significant and has been satisfactorily resolved and closed (CAR-04-002, Section 6.1).

A recommendation regarding a clear statement to be made whenever dubbing is necessary on the audio portion of a videotape, was offered for consideration. (Recommendation 1, Section 7.2)

The audit team concluded that the ANL-E/CCP RTR procedures and processes were adequate, satisfactorily implemented, and effective.

5.2.6 Table B6-6 VE Checklist

This audit was performed to assess the continued ability of the ANL-E/CCP VE process, to characterize S3000 and S5000 homogeneous solids and retrievably stored debris waste streams. The VE process was evaluated to determine the effectiveness of VE as a confirmation of the NDE process and as a characterization method that can be used in lieu of NDE. VE performed as a confirmation of NDE or in lieu of NDE is recorded on audio/video tape and the results are documented on standard forms in accordance with procedure CCP-TP-013, *CCP Waste Visual Examination and Packaging*.

ANL-E/CCP VE activities were evaluated and verified through review and examination of the documents and records generated a result of procedure implementation. The following batch data reports and associated video records were examined and evaluated to ensure that specific WAP requirements were met: AEMover042903a,

AEMover060503a, AEMover070703a, AEMover071703a and AEMover080103a. These reports are included in Attachment 3.

The training course content for operators and VE experts was reviewed to verify that all WAP requirements were included. Training files were reviewed for VE experts and operators to verify that individuals responsible for performing the visual examination of drums had been properly trained and qualified.

The audit team determined that the VE process used for S3000 and S5000 waste was adequate, satisfactorily implemented, and effective.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports

During the audit, the audit team may identify Conditions Adverse to Quality (CAQ) and document such conditions on Corrective Action Reports (CAR).

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality - A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

One WAP-related deficiency, requiring the issuance of one CAR, was identified during the audit. The CAR describes a missing RTR videotape documenting the examination of the test drum for ANL-E/CCP RTR operators. This CAR was deemed to be non-significant because the operators were confirmed to be qualified through other qualification documentation. This CAQ has been corrected and the CAR has been closed (CBFO CAR 04-002).

6.2 Deficiencies Corrected During the Audits (CDAs)

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant using the following definitions. Once a determination is made that the CAQ is not significant, the audit team members, in conjunction with the ATL, determine if the CAQ is an isolated case requiring only remedial action and therefore can be Corrected During the Audit (CDA). Upon determination that the CAQ is isolated, the audit team members, in conjunction with the ATL, evaluate/verify any objective evidence/actions submitted or taken by the audited organization and determine if the condition was corrected in acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Corrected During the Audit (CDA) – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and where correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or dated (isolated), and one or two individuals who have not completed a reading assignment.

Seven WAP-related discrepancies that resulted in CDAs were identified and corrected during this audit. The isolated deficiencies and CDA are as follows:

CDA 1

AK Attachment 5, Hazardous Constituents, lists several metals from WAP Table B-1 that are listed as expected in the ANL-E Contact Handled Debris Mixed (AECHDM) waste stream with no justification or explanation in the AK summary. In addition, four additional hazardous constituents listed on page 5 of Attachment 5 cannot be reconciled with information in the AK summary. This concern was satisfactorily resolved by making appropriate changes to Attachment 5 of Procedure CCP-TP-005, by reconciling hazardous constituents with information in the AK summary, and by initiating appropriate procedural changes to CCP-TP-005.

CDA 2

Final disposition, validation, closure and acceptance of NCR-ANL-E-507-02, R/O was performed without the objective evidence of the M&TE recalibration being provided to the CCP M&TE Custodian for updating of the M&TE history file and CCP M&TE database. In addition, copies of closed NCRs associated with M&TE are not being returned to the originator and/or M&TE Custodian to ensure update of the M&TE files and CCP database. This concern was resolved by initiating a change to CCP-QP-005 (change to freeze file for CCP-QP-005), adding additional steps to mitigate the aforementioned concern.

CDA 3

In BDR AEHSG 012203a, the drum duplicate relative percent difference (RPD) for acetone exceeded the 25% limit. An NCR was written, but the data were not "Z" flagged. This concern was resolved by correcting the data – adding the "Z" flag, updating checklists, and issuing an NCR.

CDA 4

A bromofluorobenzene (BFB) calibration gas was used past its expiration date in one sample analysis. This concern was satisfactorily resolved by removing the drum from

the waste stream and WWIS, returning it to ANL-E, and issuing NCR No. NCR-ANLE-0520-03.

CDA 5

The record "WWIS Data Approval/Rejection Reports" under Payload Characteristics is a duplicate of the same record under Certification Module. The duplicate record is not retained in QA records. This concern was satisfactorily resolved by the initiation of a change to Procedure CCP-TP-030 (change to freeze file), to remove the duplicate records out of Sections 4.14.8 and 5.1.1.

CDA 6

The "Software Code Management: Code Information Summary" has main headings for software category in addition to a column containing software category. The information is sometimes conflicting. The main heading System Software has Excel sheets listed as commercial software in the column. This concern was resolved by a revision to the "Software Code Management: Code Information Summary" and correcting both the main headings and the category column.

CDA 7

The RIDS for ANL-E did not include the QA records listed in CCP-TP-030, R9 for Certification Module or Payload Characteristics. All required records were being retained in QA records. This concern was satisfactorily resolved via initiation of a CCP Records Inventory Worksheet to include the records on the next revision of the RIDS.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify conditions that warrant input by the audit team to the audited organization regarding potential problems or suggestions for improvement. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations or Recommendation, using the following definitions. Once a determination is made, the audit team members, in conjunction with the ATL, categorize the conditions appropriately.

Observation – A condition that, if not controlled, could result in a CAQ.

Recommendations – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

7.1 Observations

The audit team made no Observations as a result of the audit.

7.2 Recommendations

The audit team made two Recommendations for improvement of the CCP processes and procedures. The Recommendations, provided to CCP management for consideration, are described below:

Recommendation 1

In BDR AEMover073203a, the audio portion of the videotape was lost. An NCR was written and it was determined that audio should be dubbed in. No statement made, however, that the videotape was dubbed. The audit team recommended that a clear statement be added to future tapes when dubbing is necessary.

Recommendation 2

Certificates for seven of eight certified gases/liquid standards were not available on-site. The audit team therefore recommended that all certificates of analyses be kept by the CCP records organization.

8.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During Audit
- Attachment 2: Corrective Action Supporting Documentation
- Attachment 3: Objective Evidence
- Attachment 4: ANL-E/CCP Implementing Procedures

PERSONNEL CONTACTED DURING AUDIT A-04-03				
NAME	TITLE/ORG	PRE AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Aldrich, Beth	L&M Document Services		X	
Ashford, Angela	L&M Doc. Services/CCP		X	
Becker, David	CCP AK/LANL	X	X	
Bickerstaff, Sheila	CCP Record Custodian	X	X	X
Campos-Hernandez, Lisa	CCP/WWIS Data Entry		X	
Carter, Donna	L&M/CCP		X	
Clifton, Erin	L&M/CCP		X	
Fesmire, Courtland	CCP/SPM	X	X	X
Fisher, A. J.	CCP QA Manager	X	X	X
Freeze, Deborah	CCP Training Specialist	X	X	X
Franco, Joe	CCP/Project Manager	X	X	X
Gomez, Christine	CCP/WTS SPQAO		X	X
Gran, J.F.	CCP SPQAO		X	
Guerin, Dave	CCP/LANL-CO, AKE		X	
Haar, Dave	CCP Program Manager	X	X	X
Hackney, Leanne	CCP/WTS		X	
Hedahl, Tim	Deputy Manager, NTP		X	X
Mooney, Dean	CCP, SPQAO		X	X
Peters, Kevin	CCP/Tech. Specs., AKE	X	X	X
Porter, Larry	CCP e-QA/WTS	X	X	X

PERSONNEL CONTACTED DURING AUDIT A-04-03				
NAME	TITLE/ORG	PRE AUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Price, Lisa	L&M Document Services		X	
Quintana, Doris	CCP, SPQAO		X	
Quintana, Irene	CCP, SPQAO		X	
Rose, Steve	CCP/WTS OPPS	X	X	X
Schoen, Doug	CCP - Procurement		X	
Sharif, Farok	Manager,NTP	X	X	X
Smith, Tyrone	CCP/WTS-NTS M&TE Custodian		X	
Speed, David	WWIS Team Lead		X	
Stepzinski, Chuck	CCP Tech. Writer, L&M		X	
Stroble, J.R.	WTS/CCP, WCO Manager, Project Cert.		X	

ANL-E/CCP IMPLEMENTING PROCEDURES (A-04-03)		
Number of Documents	Procedure Number/Rev. No.	DOCUMENT TITLE
1	CCP-PO-002,	CCP Transuranic Waste Certification Plan
2	CCP-PO-007	CCP/ANL-E Interface Document
3	CCP-PO-008	CCP Quality Assurance Interface with the WTS QA program
4	University of Chicago/WTS Contract No. 2F-01083 Appendix B-1	Argonne National Laboratory-East (ANL-E) Statement of Work for Characterization of ANL-E TRU Waste, Rev 1, 01/23/03 Contract No. 2F-01083
5	CCP-QP-001	CCP Graded Approach
6	CCP-QP-002	CCP Training and Qualification Plan
7	CCP-QP-004	CCP Corrective Action Management
8	CCP-QP-005	CCP TRU Nonconforming Item Reporting and Control
9	CCP-QP-006	CCP Corrective Action Reporting and Control
10	CCP-QP-008	CCP Records Management
11	CCP-QP-009	CCP Work Control Process
12	CCP-QP-010	CCP Document Preparation, Approval and Control
13	CCP-QP-011	CCP Notebooks & Logbooks
14	CCP-QP-015	CCP Procurement
15	CCP-QP-016	CCP Control of Measuring, Testing and Data Collection Equipment
16	CCP-QP-017	CCP Identification and Control of Items
17	CCP-QP-018	CCP Management Assessment
18	CCP-QP-019	CCP Quality Assurance Reporting to Management
19	CCP-QP-021	CCP Surveillance Program
20	CCP-QP-022	CCP TRU Software Quality Assurance
21	CCP-QP-023	CCP Handling, Storage, and Shipping
22	CCP-QP-026	CCP Inspection Control
23	CCP-QP-27	CCP Test Control
24	CCP-QP-028	CCP Records Filing, Inventorying, Scheduling, and Dispositioning
25	CCP-QP-031	CCP Using e-QA and the Training Database
26	CCP-QP-035	CCP System Qualification Status Using the e-QA System
27	CCP-TP-001	CCP Project Level Data Validation and Verification
28	CCP-TP-002	CCP Reconciliation of DQOs and Reporting Characterization Data
29	CCP-TP-003	CCP Sampling Design and Data Analysis for RCRA Characterization
30	CCP-TP-005	CCP Acceptable Knowledge Documentation
31	CCP-TP-013	CCP Waste Visual Examination and Repackaging
32	CCP-TP-028	CCP Radiographic Test and Training Drum Requirements
33	CCP-TP-030	CCP WWIS Data Entry and TRU Waste Certification
34	CCP-TP-031	CCP Headspace Gas Sampling Using Automated Manifold
35	CCP-TP-034	CCP HSG Data Generation and Batch Data Report
36	CCP-TP-039	CCP Preparing and Handling Waste Drums for Headspace Gas
37	CCP-TP-041	CCP Preparing and Handling Waste Drums for Visual Examination
38	CCP-TP045	CCP RTR#5 Radiography Inspection Operating Procedure
39	CCP-TP-056	CCP HSG Performance Demonstration Plan
40	CCP-TP-060	CCP Container Management at Argonne National Laboratory-East
41	CCP-PO-001	CCP Transuranic Waste Characterization Quality Assurance Project Plan
42	CCP-QP-020	CCP independent Assessments

